H. S. St. John

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NOTES ON CERTAIN SPECIES OF PANICUM OCCURRING IN OR NEAR RHODE ISLAND

J. Franklin Collins

In February, 1928, Mr. C. A. Weatherby examined the specimens of Panicum in my herbarium, and also others which were unnamed and unmounted. He was kind enough to revise the names of a few of the species and identify all of the unnamed ones, except in the case of a few immature specimens. Somewhat later I became interested in checking up the available published records of distribution of the different species, particularly records of their occurrence in Rhode Island and adjacent Massachusetts and Connecticut. This was followed by a check-up of specimens in the herbarium of the New England Botanical Club and the Gray Herbarium. The results were unexpectedly interesting from the point of view of the presence or absence of certain species in Rhode Island. These results are here briefly summarized as it is thought probable that they may be of interest to other readers of Rhodora, especially to those who collect in southern New England. The lists of species enumerated below include more particularly those in the herbaria mentioned which have been reported or collected recently in Rhode Island. They also include such as are known to occur in adjacent states and might reasonably be expected in Rhode Island. The asterisk (*) indicates species that are recorded in manuals in a general way as occurring in Rhode Island, but are not specifically included from the state in Hitchcock & Chase, "North American Species of Panicum" (1910). Specimens in the Gray Herbarium are indicated by (G), those in the herbarium of the New England Botanical Club by (NE), and those in the herbarium of the writer by (C).

(1) Reported from Connecticut and Long Island but not from Rhode Island. *P. amarum* Ell., *P. Boscii* var. *molle* (Vasey) H. & C.

(2) Reported from Long Island, Connecticut and Massachusetts but not from Rhode Island. *P. Addisonii* Nash., *P. Commonsianum* Ashe, *P. lucidum* Ashe.

(3) Reported from Long Island and Massachusetts but not Rhode Island. *P. Wrightianum* Scribn. (*P. minutulum* Desv.).

(4) Reported from Connecticut and Massachusetts but not Rhode Island. *P. Bicknellii* Nash., **P. Boscii* Poir., **P. xanthophysum* Gray.

(5) Reported from Connecticut but not Rhode Island. *P. pseudopubescens* Nash, *P. stipatatum* Nash.

(6) Reported from Massachusetts but not Rhode Island. *P. calliphyllum* Ashe, *P. commutatum* Schultes, *P. Clutei* Nash.

The following notes refer primarily to specimens seen in one or more of the herbaria mentioned above.

P. ALBEMARLENSE Ashe. First reported from Rhode Island by Fernald (Rhod. **24**: 98) in 1922. It is now known from the towns of Warwick, Portsmouth (Prudence Island), Westerly, New Shoreham (Block Island), and Little Compton (NE)—all towns bordering on salt water.

P. ANNULUM Ashe. Reported from New Jersey southward and westward. It has been collected by Fernald in Harwich, Mass. (NE. G).

P. AUBURNE Ashe. Reported from Virginia southward. It has been collected on Cape Cod, Mass. (NE. G).

P. BARBULATUM Mx. Reported from Mass. and Conn. It has been collected in Johnston, Warwick (NE), and Westerly, R. I. (C).

*P. CAPILLARE L. Collected in Warwick and Westerly, R. I. (NE).

P. CAPILLARE var. OCCIDENTALE Rydb. (*P. barbipulvinatum* Nash). Reported from Illinois westward. Probably naturalized eastward (Rhod. **21**: 110). Reported by Bicknell (Rhod. **16**: 82) in 1914 from Marthas Vineyard, Mass., and Long Island, N. Y. Since then specimens have been identified as this variety from Prince Edward Island, New Brunswick, and Nova Scotia, and practically across the country to the Pacific coast (G). In Rhode Island it has been collected in East Providence (*Williams*, 1903) and Block Island (*Fernald, Long and Torrey*, 1913) (G).

*P. COLUMBIANUM Scribn. Collected in Warwick, Little Compton (C), and Charlestown, R. I. (NE).

P. COLUMBIANUM var. THINIUM H. & C. Reported from Massachusetts, New Jersey, and southward. It has been collected in Connecticut (NE), and in Hopkinton, R. I. (C).

P. DEPAUPERATUM var. PSILOPHYLLUM Fernald. Described as a *n. var.* in 1921 (RHOD. **23**: 193). It has been collected in Johnston, Smithfield, Glocester (C), Providence, Warwick (NE. G), Cumberland, East Providence, Coventry, Hopkinton, Westerly, and Middletown, R. I. (NE).

*P. DICHOTOMIFLORUM MX. Collected in Providence (NE. C), Warwick, Westerly, and Block Island, R. I. (NE).

P. DICHOTOMIFLORUM var. PURITANORUM Svenson. Described as a *n. var.* in 1920 (RHOD. **22**: 154) from Cape Cod, Mass. Collected in South Kingstown, R. I., in 1914 by Collins and Fernald (NE).

*P. DICHOTOMUM L. Reported from Warwick, R. I., in 1908 (RHOD. **12**: 216). It is widely distributed in Rhode Island, e. g., in Providence, Lincoln, Johnston (C), Hopkinton (NE. C), Warwick, South Kingstown, Westerly (NE).

P. LANUGINOSUM Ell. Reported from New Jersey southward. It was collected on Block Island, R. I., in 1913 by Fernald, Long and Torrey (NE).

*P. LINEARIFOLIUM Scribn. Collected in Cumberland in 1917 by Knowlton, and in Foster, R. I., in 1922 by Eaton and Fassett (NE).

*P. LINEARIFOLIUM var. WERNERI (Scribn.) Fernald. Collected in Glocester (NE), Wickford (G), and Block Island, R. I. (NE. G).

P. LONGIFOLIUM Torr. Reported by H. & C. (p. 106) from "Shannock, R. I." This village is situated partly in Richmond and partly in Charlestown. In addition to this station it is known from Hopkinton (NE. C), Westerly and Richmond, R. I. (NE).

P. MATTAMUSKEETENSE Ashe. Reported from Long Island southward. Erroneously reported from Massachusetts in 1901 (RHOD. **3**: 114 and **15**: 57). It has been collected in Massachusetts (NE. G) and by the writer in South Kingstown, R. I., in 1927 (NE. G. C).

*P. MILIACEUM L. To be expected on any dumping ground. Collected in Little Compton, East Providence (C), and Providence, R. I. (NE. C).

P. OLIGOSANTHES Schultes. Reported from New Jersey to Texas, and in Massachusetts in 1913 (RHOD. **15**: 58 and 64). Collected on Block Island, R. I., in 1913 by Fernald and Long (NE. G).

P. PHILADELPHICUM Bernh., as redefined by Fernald (RHOD. **21**: 112). Reported from Connecticut. Collected in Hopkinton, R. I., in 1919 by Ware, Woodward and Harger (NE).

P. SCOPARIOIDES Ashe. Reported from Connecticut (H. & C., p. 239, and RHOD. **15**: 66). It has been collected at Sharon, Mass. (NE).

P. SCOPARIUM Lam. Reported from Cape Cod (H. & C., p. 295) and Marthas Vineyard (RHOD. **16**: 82), Mass., and from New Jersey southward. Collected on Block Island, R. I., in 1916 by Collins, Gravatt and Spaulding (NE).

P. SUBVILLOSUM Ashe. Reported from Massachusetts and Con-

necticut. Collected by Fernald, Long and Torrey on Block Island, R. I., in 1913 (G).

*P. VILLOSISSIMUM Nash. Collected in Hopkinton, R. I., in 1919 by Fernald, Woodward and Collins (NE).

BROWN UNIVERSITY.

CONCERNING THE PROPER IDENTIFICATION OF LINNAEAN SPECIES, ESPECIALLY THOSE BASED ON MATERIAL COLLECTED BY CLAYTON

KENNETH K. MACKENZIE

ONE of the great basic collections of American plants is the collection made by Clayton in Virginia. This is preserved in the British Museum. Of it Gray (Scientific Papers of Asa Gray **2**: 9–10) says: "But still more important is the herbarium of Clayton, from whose notes and specimens Gronovius edited the 'Flora Virginica.' Many Linnaean species are founded on the plants here described for which this herbarium is alone authentic; for Linnaeus, as we have already remarked, possessed very few of Clayton's plants. The collection is nearly complete, but the specimens were not well prepared, and are not therefore always in perfect preservation." "From Gronovius, Linnaeus had received a very small number of Clayton's plants, previous to the publication of the 'Species Plantarum'; but most of the species of the 'Flora Virginica' were adopted or referred to other plants on the authority of the descriptions alone." (l. c. 6.)

We must also bear in mind that Linnaeus had actively assisted Gronovius in the Flora Virginica, which was published in 1739–1743. "Other work of Linnaeus in Leyden consisted * * * . He also helped Gronovius with his 'Flora Virginica' in which Linnaeus's principles were embodied." (Jackson, Linnaeus 165; Pulteney, Linnaeus 49.) Gronovius in the preface to his work (p. 3) acknowledged the assistance of Linnaeus as follows:

"Nullus igitur dubitavi specimina plantarum cum perspicacissimo Linnaeo examinare; utinam reliqua etiam cum doctissimo viro ad examen revocare mihi licuisset."

So when we find Linnaeus in 1753 in his Species Plantarum constantly referring to Gronovius' Flora Virginica, these references are to a work in which he had assisted and to a collection with which he was personally thoroughly familiar. And these references are of

the most definite nature, because they are to the specific specimens with which Gronovius and Linnaeus worked.

The situation with respect to the Linnaean herbarium on the other hand is very unsatisfactory and very exasperating. Its condition is fully discussed by the late Dr. B. D. Jackson (Proc. Linnean Society, 1912 Appendix). Information as to collector, place and time of receipt of a specimen is very often absent, and only arbitrary signs or such abbreviations as "K" for Kalm usually appear. Sometimes there are no data at all. The name and the number in the first edition of the Species Plantarum usually are given, additions made afterwards being given letters.

From three lists (not entirely accurate apparently) which are preserved we know what species Linnaeus had represented in his herbarium in 1753, in 1755 and in 1767. However, we cannot be sure that the specimens he had in those years are the specimens existing now, for he was constantly adding to his herbarium and it also suffered severe losses.

"The younger Linné complained of the terrible damage done by mice, moulds and insects * * * [he] must have withdrawn the damaged sheets." (Jackson l. c. 21.) And we further learn from the son that Linnaeus himself destroyed many of his specimens. "My late father weeded out his herbarium, while he was able to work, and seems to have burned all the duplicates; why, no one knows." (Fries, Linné **2**: 416, note.)

In short, in dealing with specimens now in the Linnaean herbarium, we are very frequently indeed dealing with specimens which were not specifically referred to by him in his works and which we cannot feel sure were in his possession at any particular date. All we can feel sure from his naming is that he referred a particular specimen to some particular species of his own. And unfortunately his knowledge of his own species was very frequently vague and unreliable. He was engaged in the herculean task of putting into usable form the works of his predecessors, and neither he nor anyone else under the circumstances could have been expected to have anything but the most general knowledge of the great mass of material with which he dealt.

Not infrequently, in dealing with one of the American species of Linnaeus we are confronted with the choice of applying a name given by him either (1) to a specimen of Clayton's collecting

which is definitely cited by Linnaeus and which we know he studied but which was not preserved in his own herbarium; or (2) to a specimen in the herbarium of Linnaeus but not cited by him, frequently without data and the history of which is entirely unknown, but one which bears his naming.

To test this matter let us suppose that an American author a number of years ago in a descriptive list of some collection not in his own herbarium, referred some particular specimen to some previously described species; then after a space of years let us suppose that in another work he gave a specific reference to his earlier publication and in this second work assigned a binomial name to such plant; let us further suppose that in his own herbarium at the time of the publication of his second work he had a sheet containing a specimen without data of any kind on which he wrote the binomial name given in his second work, but that he did not refer to such specimen in such second work; let us further suppose that this specimen represented a species other than the plant described in the first work. On such a state of facts I believe that all will agree that the binomial name in the author's second work should be applied to the plant described in the author's first work and should not be applied to the plant represented in his herbarium.

The above suppositious case represents a condition which is of frequent occurrence in dealing with Linnaean species of American plants, where he cites material collected by Clayton, and writers sadly led astray by the glamour of the Linnaean herbarium have reached results in identifying his species which would never have been thought of in other connections.

In such cases it seems to me that we should apply the Linnaean names to the specimens collected by Clayton; that we should follow certainly rather than uncertainly, definitely cited specimens rather than specimens merely named in an author's herbarium.

Let us apply the above to the following concrete cases:

(1) Prunus virginiana L. Sp. Pl. 473. 1753.

The original publication by Linnaeus reads as follows:

"2. PRUNUS floribus racemosis, foliis deciduis basi antice glandulosis.

Cerasus sylvestris, fructu nigricante in racemis longis pendulis phytolaccae instar congestis. *Gron. virg.* 54. *Roy. lugdb.* 537.

Cerasi similis arbuscula mariana, padi folio, flore albo parvo racemoso. *Pluk. mant.* 43. *t.* 339. *Catesb. car.* 1. *p.* 28. *t.* 28.

Habitat in Virginia."

The Clayton specimen cited from Gronovius is *Prunus serotina* Ehrh.

The only specimen in the Linnaean herbarium is *Prunus nana* DuRoi. A specimen was in the Linnaean herbarium in 1753. According to information furnished me by the late Dr. B. D. Jackson, there are no data of any kind whatsoever in connection with this specimen (a flowering one of which I have a photograph) to show who collected it or from where it came. It is entirely probable that it came from a cultivated plant in the Upsala Garden, because *Prunus virginiana* was listed as cultivated there in 1753 (Hojer, Dem. Pl. in Hort. Ups., 13), but this is only a supposition on my part.

The citation from Plukenet refers to *Itea virginica* L. and the citation from Catesby to *Prunus caroliniana* (Mill.) Ait. These references were cancelled by Linnaeus (Sp. Pl. Ed. 2) and can be disregarded. (See Torrey & Gray, Fl. N. Am. **1**: 410.)

It will be noted that the Linnaean specific name was taken from the Clayton specimen, it being the only one cited from Virginia. It will be noted also that Linnaeus gave no description of his own, except such as is contained in his polynomial name. This applies to either *Prunus serotina* Ehrh. or to *Prunus nana* DuRoi; and as a matter of fact merely followed a system he adopted for naming various species of *Prunus*, his names running (1) "Prunus floribus racemosis, foliis deciduis basi subtus biglandulosis"; (2) "Prunus floribus racemosis, foliis deciduis basi antice glandulosis"; (3) "Prunus floribus racemosis, foliis sempervirentibus eglandulosis," etc.

Under these circumstances it seems to me that Miller, DuRoi, Wangenheim, Marshall, Aiton, Walter, Poiret, Pursh, Bigelow, Elliott and numerous more recent writers have been correct in applying the Linnaean name to the black cherry (*Prunus serotina* Ehrh.) and I cannot follow Prof. Fernald's contrary course based on partial information. (RHODORA **18**: 140.)[1]

(2) ASTER NOVAE-ANGLIAE L. Sp. Pl. 875. 1753.

The original publication by Linnaeus is as follows:

[1] It may be here noted that a strikingly similar problem is involved in *Quercus rubra* L. (Sp. Pl. 996). The specimens in the Linnaean Herbarium so named by Linnaeus are specimens of *Quercus coccinea* Wang. (Sargent in RHODORA **18**: 45–6), and the Linnaean polynomial name applies to them as well as to other related species. However, they are not cited or referred to by him, altho they were apparently in his herbarium in 1753. Under these circumstances Sargent disregarded these specimens and applied the Linnaean name to the Clayton material which was directly cited by Linnaeus. It seems to me that in so doing he was quite correct. (See RHODORA **17**: 39–40 and **18**: 45–8.)

"15. ASTER foliis lanceolatis alternis integerrimis semiamplexicaulibus, floribus terminalibus. *Hort. cliff.* 408. *Gron. virg.* 100. *Roy. lugdb.* 166.

Aster novae angliae altissimus hirsutus, floribus amplis purpuro-violaceis. *Herm. par.* 98. *t.* 98.

Aster novae angliae altissimus hirsutus, floribus omnium maximis purpuro-violaceis. *Tournef. inst.* 482.

Habitat in Nova Anglia. ♃

Caulis *fuscus.* Pedunculi *imbricati foliolis.* Corollae *radius caeruleus.*"

The earlier citations given by Linnaeus refer to the plant commonly passing as *Aster novae-angliae* L.

The specimen in the Linnaean herbarium is of *Aster grandiflorus* L. (Gray, Proc. Am. Acad. **17**: 165. 1882). A specimen (probably this) was in the Linnaean herbarium in 1753.

The eight words of description by Linnaeus apply to *Aster grandiflorus* L. and not to *Aster novae-angliae* L. as ordinarily understood.

Here we would undoubtedly have applied the Linnaean name to the plant which is represented in his herbarium and to which his few words of original description apply, were it not for the fact that he took his specific name from the plant of earlier authors, in fact one which he himself had dealt with in the Hortus Cliffortianus. But as far as I can see the case is much stronger for applying the name *Aster novae-angliae* to *Aster grandiflorus* than is the case for applying the name *Prunus virginiana* to the choke-cherry.

(3) Acalypha virginica L. Sp. Pl. 1003. 1753.

The original publication by Linnaeus reads as follows:

"1. ACALYPHA involucris femineis cordatis incisis, foliis ovato-lanceolatis petiolo longioribus. *Hort. ups.* 290. *Fl. zeyl.* 342.

"Acalypha foliis ovato-lanceolatis, involucris femineis obtusis. *Hort. cliff.* 495. *Gron. virg.* 116.

"Mercurialis tricoccos hermaphroditica s. ad foliorum juncturas e foliolis cristatis julifera simul & fructum gerens. *Burm. zeyl.* 248. *t.* 99. *f.* 4. (Should be *Pluk. phyt.*)

"*Habitat in* Zeylona, Virginia. ⊙"

Investigation has shown that the only specimen of this species in the Linnaean herbarium is without data of any kind. Of this specimen I have received photographs. It is highly probable that it was taken from the Upsala Garden, but this is at best only a guess. Mueller's definite statement that it came from the Upsala Garden referred to by Mr. Weatherby in his very thoughtful study of this species and its allies (Rhodora **29**: 197) was not justified as far as

I have been able to find out. According to Weatherby (l. c. 196–7) this specimen represents one species, and the Clayton specimen from Virginia cited by Linnaeus represents another. Had we an authentic specimen from the Upsala Garden we would be confronted with the choice of applying the name of Linnaeus either to such specimen or to the specimen collected by Clayton from which he took his specific name. In that case it seems to me that the latter course would have been the correct one. But when in addition we find that there is no authentic material preserved from the Upsala Garden, it seems to me very plain that we must apply the Linnaean name to the Clayton specimen.

(4) Scirpus capitatus L. Sp. Pl. 48. 1753.

The original publication by Linnaeus reads as follows:

"5. SCIRPUS culmo tereti nudo setiformi, spica subglobosa. Scirpus culmo setaceo nudo, spica subglobosa. *Gron. virg.* 12. *Habitat in* Virginia."

The Clayton specimen cited from Gronovius is *Eleocharis tenuis* (Willd.) Schultes.

The only specimen in the Linnaean herbarium is one of *Eleocharis obtusa* (Willd.) Schultes. This was one of those specimens "obtained after 1767, or * * by some accident not recorded by Linné" (Jackson).

Dr. Blake (Rhodora **20**: 24) ignored the specimen in the Linnaean herbarium and applied the Linnaean name to the Clayton material. In this it seems to me that he was entirely correct.

Maplewood, New Jersey.

THE GENUS TRISETUM IN AMERICA

Father Louis-Marie O. C.

(Continued from page 222)

Trisetum oreophilum Louis-Marie, var. **Johnstonii**, var. n. A typo differt panicula cylindrica (3 cm. long., 1 cm. lat.), exserta; spiculis 3-floris; arista maxime variabili: a mucrone vix 1 mm. long. ad normalem 4 mm. long. divaricatam aristam; pallida canescentia laminarum vaginarumque.

Differing from the type by panicle (3 cm. long, 1 cm. wide) cylindrical, exserted; spikelets 3-flowered; awn very variable: from a short (less than 1 mm. long.) beak to a normal (4 mm. long) divaricate one; by the canescent pilosity of the blades and sheaths.

Distribution. North Argentina: Andes of N. W. San Juan, Arroyo Tambillos, 4300 m. alt. Jan. 10, 1926, *Ivan M. Johnston*. type at the Gray Herbarium; isotype at the U. S. Nat. Herbarium of Washington.

22. Trisetum lasiolepis E. Desv., C. Gay, Flor. Chil. **6**: 346. 1853.

23. Trisetum Preslei (Kunth) E. Desv. C. Gay, Flor. Chil. **6**: 347. 1853.

Trisetum Preslei (Kunth) E. Desv., var. **lasiantha** (Phil.), comb. n. *Deschampsia lasiantha* Phil., Linnaea **33**: 290. 1864–65.

Trisetum Preslei (Kunth) E. Desv., var. **Buchtienii** (Hack.) comb. n. *Trisetum Buchtienii* Hack. Oesterr. botan. Zeitschr. **54**: 290. 1904.

24. Trisetum spicatum (L.) Richt. Pl. Eur. **1**: 59. 1890. *Aira spicata* L. Sp. Plant. n. 7, 64, non n. 1. 63, 1753. *Aira sub-spicata* L. Syst. Nat. **2**: 873. 1759. *Trisetum subspicatum* Beauv., Nouv. Agrost. 88. 1812. *Avena subspicata* Clairville, Man. Suisse, 17. 1811. *Avena airoides* Koeler, Descr. gram. 205. 1902. *Trisetum airoides* Roemer & Schultes, Syst. Veg. **2**: 666. 1817. *Melica triflora* Bigel, New Engl. Journ. Med. et Surg. **5**: 334. 1816. White Mts. (fide Piper). *T. tolucense* Kunth, Rev. Gram. **1**: 101 & 297, t. 60. 1830 (1829). *T. andinum* Phil. Linnaea **29**: 93. 1857–58. non Bentham 1846. *T. labradoricum* Steud. Syn. Pl., Gram. 228. 1854. *T. groenlandicum* Steud. Syn. Pl., Gram. 228. 1854. *T. subspicatum* var. *breviglume* Hack. Wiss. Ergbn. Südpolar-Exp. **4**, pt. 4: 6. 1906. *T. subspicatum* var. *glabrifolium* Hackel, Rep. Princeton Univ. Exped. Patagonia, **8**, Suppl. 49. 1915.

One must go back to Scheuchzer,[1] quoted by Linnaeus in his original diagnosis of Aira spicata,[2] to reconstitute the type of *T. spicatum*, where the latter species is fully described and illustrated.

The plant (17–30 cm. high) is described as having glabrous, striate leaves; ligule (about 1 mm. long) obtuse; culm densely tomentose; panicle spike-like (about 1.5 cm. long, 0.7–1 cm. wide), purplish, shining; spikelets (about 4 mm. long) 2-flowered; glumes unequal (I shorter and narrower, II about 2 mm. wide and 4 mm. long), glabrous; lemma (4 mm. long) awned dorsally on the upper ¼; awn (about 4 mm. long) reflexed; palea equal or subequal to the lemma; rachilla densely villous; anthers 0.6–1 mm. long.

In the present state of our knowledge, the following variations departing from Scheuchzer's type seem to deserve mention:

[1] Scheuchzer, Johan., Agrostographia, 221. 1719.
[2] Species Plantarum, n. 7, 64, non n. 1, 63. 1753.

1. T. SPICATUM var. **hirsutum** (Phil.), comb. n. *T. hirsutum* Phil. Anal. Univers. Chil. 565. July 1873.
2. T. SPICATUM var. PHLEOIDES (Kunth) Macloskie, Rep. Princeton Univers. Exped. Patagonia **8:** 206. 1904.
3. T. SPICATUM var. **fuegianum** (Hack.), comb. n. *T. subspicatum* var. *fuegianum* Hack. Wiss. Ergebn. Schwed. Südpolar-Exped. **4,** pt. 4: 1906.
4. T. SPICATUM var. **dianthemum,** nom. n. *T. biflorum* Phil. Anal. Univ. Chil. 568. Jul. 1873; non Hochst. Flora **38:** 275. 1852.
5. T. SPICATUM var. **andinum** (Benth.), comb. n. *T. andinum* Benth. Pl. Hartw. 261. 1847. *T. subspicatum* var. *compactum* Lange, Consp. Fl. Groenland, **3:** 164. 1880.
6. T. SPICATUM var. **laxius** (Lange), comb. n. *T. subspicatum* var. *laxius* Lange, Consp. Fl. Groenl. **3:** 164. 1880.
7. T. SPICATUM var. **nivosum** (Fourn.), comb. n. *T. nivosum* Fourn., Mex. Pl. Enum., Gram. 107. 1886.
8. T. SPICATUM var. MAJUS Farwell. Rep. Mich. Acad. Sci. **21:** 352. 1920.
9. T. SPICATUM var. MOLLE (Michx.) Piper, Contr. U. S. Nat. Herb. 11: 125. 1906.
10. T. SPICATUM var. **Brittonii** (Nash), comb. n. *T. Brittonii* Nash, Bull. N. Y. Gard. **1:** 437. 1900.
11. T. SPICATUM var. PILOSIGLUME Fern. RHODORA **18:** 195. 1916.
12. T. SPICATUM var. MAIDENII (Gand.) Fern. RHOD. **18:** 196. 1916.
13. T. SPICATUM var. **alaskanum** (Nash) Malte ined. *T. alaskanum* Nash Bull. N. Y. Botan. Garden **2:** 155. 1901.
14. T. SPICATUM var. **villosissimum** (Lange), comb. n. *T. subspicatum* var. *villosissimum* Lange, Consp. Fl. Groenl. **3:** 164. 1880.

H. *Glumes very unequal*. . . I.

I. *Culm pubescent or puberulent under the panicle; palea 2-toothed.*

25. TRISETUM FOURNIERANUM Hitchc. Contr. U. S. Nat. Herb. **17:** 326. 1913.
26. TRISETUM ROSEI Scribn. & Merrill, Contr. U. S. Nat. Herb. **8:** 289. 1905.

    TRISETUM ROSEI Scribn. forma **tenerum** (Scribn. & Merrill), comb. n. *T. Rosei* var. *tenerum* Scribn. & Merrill, Contr. U. S. Nat. Herb. **8:** 289. 1905.
27. TRISETUM CONGDONI Scribn. & Merrill, Bull. Torr. Bot. Club **29:** 470. 1902.

Trisetum Congdoni is easily distinguished from *T. spicatum* by its spikelets longer, silvery shining, with glumes (6 and 8 mm. long in the type) narrow and long-attenuated at the tip, with lemma (7–8 mm.) long-awned; by its leaves more erect and glabrous.

This species is neither to be confused with *T. sesquiflorum* Trin., as

pointed out elsewhere; the latter being of boreal distribution, with more narrow-lanceolate glumes, with awn attached dorsally near the base of the lemma.[1]

28. Trisetum barbinode Trin. Linnaea **10**: 300. 1836.
Trisetum barbinode var. **hirtiflorum** (Hack.), comb. n. *T. hirtiflorum* Hack. Fedde Rep. Spec. Nov. **10**: 169. 1911.

I. *Culm glabrous under the panicle; palea 2-fid. . .* J.
J. *Anthers 0.6-1 mm. long.*

29. Trisetum caudulatum Trin. Linnaea **10**: 300. 1836. *T. chromostachyum* E. Desv., C. Gay Fl. Chil. **6**: 350. 1853.
30. Trisetum variabile E. Desv., C. Gay. Fl. Chil. **6**: 351. 1853.
1. T. variabile var. a) flavescens E. Desv. *T. ochrostachyum* Phil. Linnaea **33**: 290. 1864–65.
2. T. variabile var. b) virescens E. Desv.
3. T. variabile var. **intonsum** nom. n. *T. variabile* var. *virescens* (Nees) Mackloskie, not E. Desv.
4. T. variabile var. **chiloense** (Phil.), comb. n. *T. chiloënse* Phil. Linnaea **29**: 93. 1857–58.
5. T. variabile var. **Vidali** (Phil.), comb. n. *T. Vidali* Phil. Anal. Univ. Chil. **94**: 26. 1896.
31. Trisetum erectum Phil. Anal. Univ. Chil. **94**: 26. 1896.

J. *Anthers 1-2 mm. long.*

32. Trisetum monticola Phil. Linnaea **33**: 291. 1864–65.
33. Trisetum antarcticum Trin. Mém. Acad. St. Pétersb. Sér. 6. **1**: 61. 1830.

A. *Panicles axillary; culm branching at each node.*

34. Trisetum paradoxum Phil., Anal. Univ. Chil. **94**: 28. 1896.

Sub-section 2. Sphenophoidea Louis-Marie.

35. Trisetum pennsylvanicum Beauv. in R. & S. Syst. **2**: 658. 1817.
36. Trisetum interruptum Buckl. Proc. Acad. Sci. Phila. 100. 1862.
Trisetum interruptum Buckl., var. **californicum** (Vasey), comb. n. *T. californicum* Vasey, U. S. Dept. Agr. Div. Bot. Bull. **12**: Pl. 46. 1892.
37. Trisetum Hallii Scribn. Bull. Torr. Bot. Club **2**: 6. 1884.

Sub-section 3. Graphephorum (Desv.) Louis-Marie.

38. Trisetum melicoides (Michx.) Vasey, Bot. Gaz. **9**: 169. 1884.
39. Trisetum Wolfii Vasey, Monthly Report U. S. Dept. Agr. Mar. 156. 1874.

[1] Abrams, Flora of the Pacific States **1**: 168 (1923) by error gives *T. Congdoni* as a synonym to *T. sesquiflorum*. Prof. A. S. Hitchcock wrote us to this effect.

Trisetum Wolfii Vasey, var. **Brandegei** (Scribn.), comb. n. *T. Brandegei* Scribn. Bull. Torr. Club. **10**: 64. 1883. *Graphephorum Brandegei* (Scribn.) Rydb. Rocky Mount. Fl. 61. 1917.

Trisetum Wolfii Vasey, var. Brandegei (Scribn.) Louis-Marie, forma **muticum** (Boland.), comb. n. *T. subspicatum* var. *muticum* Boland. in S. Watson, Bot. Calif. **2**: 296. 1880. *Trisetum muticum* Scribn. U. S. Dept. Agr. Div. Agrost. Bull. **11**: 50 f. 10. 1898. *T. Wolfii* Vasey, var. *muticum* Scribn. Rhodora **8**: 88. 1906.

40. Trisetum altijugum (Fourn.) Scribn. Rhodora **8**: 89. 1906.

41. Trisetum Pringlei (Scribn.) Hitchc. Proc. Biol. Soc. Wash. **40**: 82. 1927.

Sub-section 4. Koeleriformia Louis-Marie.

Discussion. In 1805, Persoon published, side by side, in his Synopsis, Trisetum and Koeleria;[1] he thus characterized the latter one: "173. KOELERIA. *Cal.* multiflorus, 2-valvis, compresso-carinatus. *Cor.* 2-valvis, brevi-aristata: glumis nervosis. (Spica composita ex spiculis compressis, saepius pubescentibus subsessilibus.)" "173. KOELERIA *Cal.* many flowered, 2 valved, compressed-keeled. *Cor.* 2-valved, short-awned: glumes nerved (spike composed of compressed spikelets, more often pubescent, sub-sessile)."

The distinction, really weak, between the two genera, is reduced to " . . . Cor. short-awned (*Cor.* brevi-aristata)." The capricious historical development, fickle and unsteady, of the conception of the two genera in question, weakening still the line of demarcation, makes today the classification of the extreme species neighboring *Koeleria* and *Trisetum* very hard, often very subjective.

"Le genre *Koeleria*," says E. Cosson, "ne se distingue du genre *Trisetum* que par le caryopse muni d'un sillon et velu, et non pas dépourvu de sillon et glabre. Malgré le peu de valeur de ces caractères différentiels, nous avons été amenés à séparer génériquement les *Trisetum* des *Avena*, car, ainsi que M. Émile Desvaux (*Gramineae Chilenses*) l'a très bien reconnu, les *Trisetum* sont encore plus distincts des *Avena* qu'ils ne le sont des *Koeleria*." [2]

"It is difficult," says Beal,[3] "to assign to *Koeleria* any positive character. The glumes are more scarious and have fainter nerves than in the others of the subtribe."

The difficulty met in separating the two genera in question is

[1] Persoon, C., Synopsis Plantarum **1**: 97. 1805.
[2] Cosson, E., Bull. Soc. Bot. France **1**: 12. may. 1854.
[3] Beal, W. J., Grasses of N. Amer. **2**: 495. 1896.

not such as should surprise us too much. The *Aveneae* and *Festuceae* groups, whose extreme types are so clean cut, just blend into one another by numerous intermediary species; their principal characteristics, taken from the length of the glumes, the insertion of the awn and its form, are far from always being sufficiently distinctive. Such is, for example, the genus *Koeleria* which is hardly separated from the genus *Trisetum* and by that very fact belongs to the tribe of the *Aveneae*, and which may be equally referred to the tribe *Festuceae*, where most authors class it.[1]

42. Trisetum laxiflorum Phil. Anal. Univ. Chil., 567. Jul. 1873.
43. Trisetum araeanthum Phil. Anal. Univ. Chil., **94**: 26. 1896.
44. Trisetum brachyatherum Phil. Anal. Univ. Chil., 567. Jul. 1873.
45. Trisetum depauperatum Phil. Linnaea **33**: 291. 1864–65.
46. Trisetum micratherum E. Desv., C. Gay, Flora Chil. **6**: 352. 1853.
47. Trisetum nemorosum Phil. Anal. Univ. Chil. **94**: 26. 1896.
48. Trisetum laxum Phil. Anal. Univ. Chil. 568. 1873.

Sub-section 5. Deschampsioidea Louis-Marie.

49. Trisetum Palmeri Hitchc. Contrib. U. S. Nat. Herb. **17**: 325. 1913.
50. Trisetum **brasiliense**, sp. n. Rigidum, dense caespitosum (35–50 cm. altum), laeve et glabrum; culmis strictis, filiformibus; vaginis striatis, brevibus, marcescentibus; ligula (minor 1 mm.) bilateraliter producta in dua auricula, laminam lateraliter excedentia, centrali parte depressa; laminis foliorum angustioribus quam vaginae, involuto-filiformibus: his fasciculorum sterilium facile 25 cm. longis, his caulinis brevioribus, saepe ad oram vaginae fractis; panicula (5–8 cm. long., 1 cm. lat.) pauciflora, straminea-flava; spiculis bifloris: floribus plus minusve caducis; glumis aequilongis, 3-nerviis saltem inferius, navicularibus, glabris, moderate acuminatis, spiculam aequantibus: I (1.5 mm. lat.), II (2 mm. lat.) magis amplectante; lemmate (4.5 mm. long., 2 mm. lat.) apice bifido (1 mm.) segmentis latis, acutis, 5-nervio, nervis crassis, supra (0.5 mm.) basim aristato; arista (5–6 mm. long.) dimidia parte inferiore tortili vel rarissime recta, superius geniculata vel diverso recurvata; interfloris articulis rachillae et ejus prolongatione (0.5–0.7 mm. long.) perbrevibus; callo albo-piloso; palea lemma subaequante, carinis (0.6 mm. distantibus) dense pilosis; antheris (2 mm. long.) linearibus.

    Culm rigid, densely cespitose (35–50 cm. high), smooth and glabrous, filiform; sheaths striate, short, marcescent; ligule (less than 1 mm. long) reduced in the centre, auriculate

[1] Cosson, E., loc. cit. 1854.

laterally; blades narrower than the sheaths, involute-filiform: the sterile shoots of blades easily 25 cm. long, the cauline ones shorter, breaking up easily at the base; panicle (5–8 cm. long, 1 cm. wide) few-flowered, stramineous-yellow; spikelets 2-flowered; glumes equally long, 3-nerved, navicular, glabrous, acuminate, equal to the spikelet: I (1.5 mm. wide), II (2 mm. wide) more inclosing; lemma 4.5 mm. long., 2 mm. wide) 2-fid (1 mm. long) at the apex, 5-nerved, awned near the base; awn (5–6 mm. long) strongly twisted at the inferior half, geniculate or diversely bent at the superior half; rachilla and callus covered with white hair; palea subequal to the lemma; keels (0.6 mm. distant) densely pilose; anthers (2 mm. long) linear.

Distribution. BRAZIL: dense tufts in peaty soil among rocks above timberland, Itatiaia, Rio de Janeiro, Alt. 2200–2400 m., Jan. 17, 1925, *Agnes Chase*. 8304. TYPE in the U. S. Nat. Herb. Co-types at the Gray Herbarium and the Oka Agricultural Institute Herbarium. The Herbariums of Vienna and Brazil will receive each a share of the type.

Remark. We are indebted to Mrs. Agnes Chase's kindness for the above new species, which clearly belongs to the subsection *Deschampsioidea*. In fact, it was first classified under *Aira*.

51. TRISETUM JUNGENSII Hack. Verhandl. Zool. Bot. Gesellsch. Wien **65**: 75. 1915.

Section 2. AULACOA Louis-Marie.

52. TRISETUM **Trinii** (Desv.), comb. n. *Bromus Trinii* Desv., C. Gay, Flora Chilena **6**: 441. 1853. *Trisetum barbatum* Steud. Syn. Pl., Gram. 229. 1854. *Bromus barbatoides* Beal, Grasses N. Amer. **2**: 615. 1896; Vasey. Illust. N. Amer. Grasses II. **2**: Plate 60. 1893.

1. Var. **pallidiflorum** (Desv.), comb. n. *Bromus Trinii*, var. α *pallidiflora* Desv. in C. Gay, Fl. Chil. **6**: 441. 1853.
2. Var. **micrantherum** (Desv.), comb. n. *Bromus Trinii*, var. β *micranthera* Desv. l. c. 1853.
3. Var. **manicatum** (Desv.), comb. n. *Bromus Trinii*, var. γ *manicata* Desv. l. c. 1853.
4. Var. **effusum** (Desv.), comb. n. *Bromus Trinii*, var. δ *effusa* Desv. l. c. 442. 1853.
5. Var. **strictum** (Desv.), comb. n. *Bromus Trinii*, var. ε *stricta* Desv. l. c. 1853.
6. Var. **majus** (Vasey), comb. n. *T. barbatum* var. *major* Vasey, Illust. N. Amer. Grasses II. **2**: 1893. *Bromus barbatoides* var. *sulcatus* Beal, Grasses N. Amer. **2**: 615. 1896.
7. Var. **litorale** (Phil.), comb. n. *T. litorale* Phil. Linnaea **29**: 92. 1857–58.

53. TRISETUM FLORIBUNDUM Pilger, Bot. Jahrb. Engler, **37**: 505. 1906.

Trisetum floribundum var. **Weberbaueri**, comb. n. *T. Weberbaueri* Pilger, Bot. Jahrb. Engler. **37:** 506. 1906. (*Weberbauer* 3078).

Sub-genus II. **ISOLYTRUM** Louis-Marie.

Deyeuxia Clar. (a Fourn. emend. Bull. Soc. Bot. Fr. **24:** 181. 1877) ut genus, in part.

54. Trisetum **humile**, nom. n. *Deyeuxia gracilis* Fourn. Mex. Pl. Enum. Gram. 106. 1886; non H. A. Weddell, Bull. Soc. Bot. France. **22:** 179. mai 1875.
55. Trisetum deyeuxioides (H. B. K.) Kunth. Rev. Gram. **1:** 102. 1829.
56. Trisetum viride (H. B. K.) Kunth. Rev. Gram. **1:** 101. 1829.
57. Trisetum longiglume Hack. Fedde. Rep. Nov. Spec. **7:** 319. 1909.
58. Trisetum **andicola**, sp. n. Planta (20–30 cm. alta) robusta, caespitosa; ligula (1.5–2 mm. long.) lacerata; foliorum laminis (8–10 cm. long., 1.5–2 cm. lat.) glabris, dorsaliter subscabris; panicula (5 cm. long, 1.7 cm. lat.) spiciformi-densa, ovali-lanceolata, ascendentibus ramis; spiculis bifloris; glumis 3-nerviis saltem inferius, aequilongis (8–9 mm. long.), subaequilatis: I (1.5 mm. lat.), II (1.6 mm. lat.), glabris, spiculam aequantibus; lemma (5–6 mm. circ. long., 1.8–2.2 mm. lat.) apice (1 mm.) bilobo, bisetulato, lobis duobus lateraliter scarioso-laciniatis; ad 2.5 mm. e basi aristato; arista tenui (8 mm. circ. long.) recta vel saepius geniculata, infra genu distans 2.5–3 mm. ab insertionis loco, vix torta; rachilla et ejus pedicelliformi prolongatione longissime (3–4 mm.) albo-villosis, flores aequantibus; palea (5–5.5 mm. long.) carinis 0.3 mm. circ. distantibus; antheris (0.8–1 mm. long.) crassis.

Culm strong (20–30 cm. high) cespitose; ligule lacerated (1.5–2 mm. long.); blades glabrous (8–10 cm. long, 1.5–2 cm. wide) lightly scabrous on the ventral side; panicle (5 cm. long, 1.7 cm. wide) spiciform-dense, ovoid-elongate, with ascending branches; spikelets 2-flowered; glumes nearly isomorphous, 3-nerved at least at the base: I (1.5 mm. wide), II (1.6 mm. wide) glabrous, equal in size to the spikelets; lemma (5–6 mm. long, 1.8–2.2 mm. wide) very 2-lobed: lobes 2-setulate, scarious-laciniate on the sides; awn (8 mm. long) inserted at 2.5 mm. from the base, straight or more often geniculate at 2.5–3 mm. from the insertion point, lightly twisted under the bend; rachilla and the pedicelliform extension very (3–4 mm.) villous: white hairs equalling the glumes; palea (5–5.5 mm. long) equalling the lemma in size, 2-keeled: keels about 0.3 mm. distant; anthers (0.8–1 mm. long) broad.

Distribution. Chili: Laguna Negro, 2700–4000 m. alt. Martio 1873. *Fr. Vidal Gorus* 265.

Discussion. Philippi never knew just where to place the plant. *Arundo? Danthonia?* The names he gave it—we are relieving the synonymy of such—prove the case. On examination its place is not dubious. On an herbarium sheet of Hackel, I find a manuscript note where the present combination is already proposed.

59. Trisetum evolutum (Fourn.) Hitchc. Contrib. U. S. Nat. Herb. **17:** 325. 1913.

60. Trisetum Macbridei Hitchc. Contrib. U. S. Nat. Herb. **24:** 8. 359. 1927.

Before concluding, the writer takes great pleasure in thanking Prof. M. L. Fernald, under whose highly qualified guidance the work was accomplished, and the competent personnel of the Gray Herbarium. He acknowledges thanks also to the curators of the U. S. Nat. Herb. of Washington, of the N. Y. Bot. Garden, of the University of California Herbarium and of the National Herbarium of Canada. For the loan of material belonging to private collections, he thanks especially the RR. Brothers Marie-Victorin and Rolland-Germain and Prof. Lorenzo Parodi. He finally acknowledges thankfully the interest shown by Prof. A. S. Hitchcock and Mrs. Agnes Chase during his stay in Washington.

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Vol. 30, no. 359, including pages 209 to 228, was issued 17 December, 1928.

ERRATA

Page 3, line 26, for RUBRA read RUBRUM
" 4, " 8, for GROELANDICUM read GROENLANDICUM
" 4, last line, for GYMNOSTOMUN read GYMNOSTOMUM
" 5, line 32, for FASICULARE read FASCICULARE
" 8, " 13, for SUBGLOSUM read SUBGLOBOSUM
" 10, " 18, for PLUMULOSUM read PLUMULOSUS
" 16, " 10, for *Miss* read *Mrs.*
" 48, " 13, for *gaspensis* read *gaspense*
" 85, " 14, for *78* read *77*
" 99, " 27, *for* philogenetic *read* phylogenetic
" 108, lines 3–4, *for* road, which crosses the Neponset River meadows at the station known as Dedham Road, *read* road (Neponset Street)
" 121, line 19, for *gemmiscapa* read *geminiscapa*
" 133, " 10, *for* Lunelll *read* Lunell
" 136, " 8, for *guadaloupensis* read *guadalupensis*
" 171, " 33, *for* specmen *read* specimen
" 172, " 19, for *lateriflorus* read *lateriflora*
" 176, last line, for " " "
" 186, line 34, *for* northeastern *read* northwestern
" 198, " 35, for *trifrida* read *trifida*

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New scientific names are printed in full-face type.